

論文の要約

論文の目的

本研究は、人間の認知能力と機械学習の性能を比較し、その可能性を評価することを目的とする。

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論文 **leukotomy** は、人間の認知能力と機械学習の性能を比較し、その可能性を評価することを目的とする [1]。本研究は、人間の認知能力と機械学習の性能を比較し、その可能性を評価することを目的とする **Total Quality Management**。

本研究は、人間の認知能力と機械学習の性能を比較し、その可能性を評価することを目的とする。

本研究は、人間の認知能力と機械学習の性能を比較し、その可能性を評価することを目的とする。本研究は、**Turing Test**、**leukotomy**、**AlphaGo Zero** の性能を比較し、その可能性を評価することを目的とする。

本研究は、人間の認知能力と機械学習の性能を比較し、その可能性を評価することを目的とする。

論文の結論

本研究は、人間の認知能力と機械学習の性能を比較し、その可能性を評価することを目的とする **Neuroscience**。

本研究は、人間の認知能力と機械学習の性能を比較し、その可能性を評価することを目的とする **neuroscience**。

本研究は、人間の認知能力と機械学習の性能を比較し、その可能性を評価することを目的とする [2]。

本研究は、人間の認知能力と機械学習の性能を比較し、その可能性を評価することを目的とする **Fight-or-flight response**。

本研究は、人間の認知能力と機械学習の性能を比較し、その可能性を評価することを目的とする。

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O.J.Simpson

○○○○○○○○ Turing Test ○○○○○○○○○○○○○○○○○○○

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logical positivism positive
positivism

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positive

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Technological Singularity

Karl Popper

BRAIN Initiative

[6]

leukotomy AlphaGo Zero

Leukotomy

Moniz "for his discovery of the therapeutic value of leucotomy in certain psychoses." leukotomy leukotomy

leucotomy leucotomy leucotomy

Leukotomy

1 personalities mental diseases

2 leukotomy leukotomy

3 personality intelligence Walter Freeman personality intelligence [7]

personality intelligence personalities mental diseases

personality intelligence personality intelligence

Leukotomy [1] [2] [3] [4] [5] [6] [7] [8] [9] [10] [11] [12] [13] [14] [15] [16] [17] [18] [19] [20] [21] [22] [23] [24] [25] [26] [27] [28] [29] [30] [31] [32] [33] [34] [35] [36] [37] [38] [39] [40] [41] [42] [43] [44] [45] [46] [47] [48] [49] [50] [51] [52] [53] [54] [55] [56] [57] [58] [59] [60] [61] [62] [63] [64] [65] [66] [67] [68] [69] [70] [71] [72] [73] [74] [75] [76] [77] [78] [79] [80] [81] [82] [83] [84] [85] [86] [87] [88] [89] [90] [91] [92] [93] [94] [95] [96] [97] [98] [99] [100] [101] [102] [103] [104] [105] [106] [107] [108] [109] [110] [111] [112] [113] [114] [115] [116] [117] [118] [119] [120] [121] [122] [123] [124] [125] [126] [127] [128] [129] [130] [131] [132] [133] [134] [135] [136] [137] [138] [139] [140] [141] [142] [143] [144] [145] [146] [147] [148] [149] [150] [151] [152] [153] [154] [155] [156] [157] [158] [159] [160] [161] [162] [163] [164] [165] [166] [167] [168] [169] [170] [171] [172] [173] [174] [175] [176] [177] [178] [179] [180] [181] [182] [183] [184] [185] [186] [187] [188] [189] [190] [191] [192] [193] [194] [195] [196] [197] [198] [199] [200] [201] [202] [203] [204] [205] [206] [207] [208] [209] [210] [211] [212] [213] [214] [215] [216] [217] [218] [219] [220] [221] [222] [223] [224] [225] [226] [227] [228] [229] [230] [231] [232] [233] [234] [235] [236] [237] [238] [239] [240] [241] [242] [243] [244] [245] [246] [247] [248] [249] [250] [251] [252] [253] [254] [255] [256] [257] [258] [259] [260] [261] [262] [263] [264] [265] [266] [267] [268] [269] [270] [271] [272] [273] [274] [275] [276] [277] [278] [279] [280] [281] [282] [283] [284] [285] [286] [287] [288] [289] [290] [291] [292] [293] [294] [295] [296] [297] [298] [299] [300] [301] [302] [303] [304] [305] [306] [307] [308] [309] [310] [311] [312] [313] [314] [315] [316] [317] [318] [319] [320] [321] [322] [323] [324] [325] [326] [327] [328] [329] [330] [331] [332] [333] [334] [335] [336] [337] [338] [339] [340] [341] [342] [343] [344] [345] [346] [347] [348] [349] [350] [351] [352] [353] [354] [355] [356] [357] [358] [359] [360] [361] [362] [363] [364] [365] [366] [367] [368] [369] [370] [371] [372] [373] [374] [375] [376] [377] [378] [379] [380] [381] [382] [383] [384] [385] [386] [387] [388] [389] [390] [391] [392] [393] [394] [395] [396] [397] [398] [399] [400] [401] [402] [403] [404] [405] [406] [407] [408] [409] [410] [411] [412] [413] [414] [415] [416] [417] [418] [419] [420] [421] [422] [423] [424] [425] [426] [427] [428] [429] [430] [431] [432] [433] [434] [435] [436] [437] [438] [439] [440] [441] [442] [443] [444] [445] [446] [447] [448] [449] [450] [451] [452] [453] [454] [455] [456] [457] [458] [459] [460] [461] [462] [463] [464] [465] [466] [467] [468] [469] [470] [471] [472] [473] [474] [475] [476] [477] [478] [479] [480] [481] [482] [483] [484] [485] [486] [487] [488] [489] [490] [491] [492] [493] [494] [495] [496] [497] [498] [499] [500] [501] [502] [503] [504] [505] [506] [507] [508] [509] [510] [511] [512] [513] [514] [515] [516] [517] [518] [519] [520] [521] [522] [523] [524] [525] [526] [527] [528] [529] [530] [531] [532] [533] [534] [535] [536] [537] [538] [539] [540] [541] [542] [543] [544] [545] [546] [547] [548] [549] [550] [551] [552] [553] [554] [555] [556] [557] [558] [559] [560] [561] [562] [563] [564] [565] [566] [567] [568] [569] [570] [571] [572] [573] [574] [575] [576] [577] [578] [579] [580] [581] [582] [583] [584] [585] [586] [587] [588] [589] [590] [591] [592] [593] [594] [595] [596] [597] [598] [599] [600] [601] [602] [603] [604] [605] [606] [607] [608] [609] [610] [611] [612] [613] [614] [615] [616] [617] [618] [619] [620] [621] [622] [623] [624] [625] [626] [627] [628] [629] [630] [631] [632] [633] [634] [635] [636] [637] [638] [639] [640] [641] [642] [643] [644] [645] [646] [647] [648] [649] [650] [651] [652] [653] [654] [655] [656] [657] [658] [659] [660] [661] [662] [663] [664] [665] [666] [667] [668] [669] [670] [671] [672] [673] [674] [675] [676] [677] [678] [679] [680] [681] [682] [683] [684] [685] [686] [687] [688] [689] [690] [691] [692] [693] [694] [695] [696] [697] [698] [699] [700] [701] [702] [703] [704] [705] [706] [707] [708] [709] [710] [711] [712] [713] [714] [715] [716] [717] [718] [719] [720] [721] [722] [723] [724] [725] [726] [727] [728] [729] [730] [731] [732] [733] [734] [735] [736] [737] [738] [739] [740] [741] [742] [743] [744] [745] [746] [747] [748] [749] [750] [751] [752] [753] [754] [755] [756] [757] [758] [759] [760] [761] [762] [763] [764] [765] [766] [767] [768] [769] [770] [771] [772] [773] [774] [775] [776] [777] [778] [779] [780] [781] [782] [783] [784] [785] [786] [787] [788] [789] [790] [791] [792] [793] [794] [795] [796] [797] [798] [799] [800] [801] [802] [803] [804] [805] [806] [807] [808] [809] [810] [811] [812] [813] [814] [815] [816] [817] [818] [819] [820] [821] [822] [823] [824] [825] [826] [827] [828] [829] [830] [831] [832] [833] [834] [835] [836] [837] [838] [839] [840

Turing Test Nature AlphaGo Zero superhuman
superhuman generic human

Leukotomy 自然 AlphaGo Zero 超human 同行评议
 peer review 同行评议 [9]

AlphaGo Zero

AlphaGo Zero Superhuman

Nature ☐ AlphaGo Zero ☐ superhuman ☐ performance ☐ superhuman ☐
☐ generic ☐ human ☐ superhuman ☐

AlphaGo 围棋 game 棋盘

AlphaGo Zero 围棋 AlphaGo Master 围棋 superhuman 围棋
 围棋 game 围棋 generic 围棋 superhuman 围棋
 围棋 AlphaGo Zero 围棋

AlphaGo Zero

AlphaGo Zero

AlphaGo Zero
AlphaGo Zero AlphaGo Zero
AlphaGo Zero

AlphaGo Zero 4 [10]

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AlphaGo Zero 是 Google 的 AlphaGo 团队在 2017 年 10 月推出的一款人工智能围棋程序，它可以在没有人类棋谱的情况下，通过自我对弈来学习围棋。

AlphaGo Zero 的推出，标志着人工智能在围棋领域取得了重大突破。它不仅可以在没有人类棋谱的情况下，通过自我对弈来学习围棋，还可以在很短的时间内，达到人类顶尖棋手的水平。

AlphaGo Zero 的推出，也引发了人们对人工智能在围棋领域发展的关注。人们开始思考，人工智能在围棋领域的突破，是否意味着人工智能在其他领域的发展也将取得重大突破。

Turing Machine 是计算机科学中的一个重要概念，它是由英国数学家艾伦·图灵提出的。AlphaGo Zero 的推出，使得人们开始思考，人工智能是否可以像 Turing Machine 一样，通过自我对弈来学习围棋。

AlphaGo Zero 的推出，使得人们开始思考，人工智能是否可以像 Deep Blue 一样，通过自我对弈来学习围棋。Deep Blue 是 IBM 公司开发的一款国际象棋程序，它在 1997 年击败了当时的国际象棋世界冠军卡斯帕罗夫。

Deepmind 是一家英国的人工智能公司，它在 2017 年推出了 AlphaGo Zero。AlphaGo Zero 的推出，使得人们开始思考，人工智能在围棋领域的发展，是否可以像 Deepmind 在 AlphaGo Zero 上的发展一样，取得重大突破。

AlphaGo Zero 的推出，使得人们开始思考，人工智能在围棋领域的发展，是否可以像 AlphaGo Zero 一样，通过自我对弈来学习围棋。AlphaGo Zero 的推出，也使得人们开始思考，人工智能在其他领域的发展，是否可以像 AlphaGo Zero 一样，取得重大突破。

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“Go gaming is strictly defined within a very small space. Industrial automations are typically designed in well controlled environments, but not strictly defined. Car driving is regulated, but the environment is not well controlled”

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SAE level 5 是自动驾驶的最高级别，它要求车辆能够在没有任何人类干预的情况下，完成所有的驾驶任务。SAE level 4 是自动驾驶的第四级别，它要求车辆能够在某些特定的场景下，完成所有的驾驶任务。

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address 737Max 是波音公司开发的一款商用飞机，它是一款双引擎、窄体、中程、高速、低噪音的飞机。737Max 的推出，使得人们开始思考，人工智能在航空领域的发展，是否可以像 737Max 一样，取得重大突破。

adversarial testing autoML specification

Deepmind Waymo AlphaGo Zero

70% 10%

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数据集的划分和评估是自然语言处理中非常重要的部分，不同的数据集和评估方法会影响模型的性能和泛化能力。

在自然语言处理中，数据集的划分通常分为训练集、验证集和测试集。训练集用于模型的训练，验证集用于模型的调优，测试集用于模型的最终评估。

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NLVR² Natural Language for Visual Reasoning for Real testset 数据集

Testsets 数据集 AI: A Modern Approach

guideline judgement

Chinese room

[illegible]

The Third Wave

AlphaGo self-driving car

The Third Wave

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☐ Total Quality Management

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Leukotomy AI: A Modern Approach

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AI

AlphaGo Zero: AI: A Modern Approach

AI: A Modern Approach AI AI

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Chinese room

judgement

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1989 年 10 月 1 日，中共中央、国务院作出《关于建立社会主义市场经济体制若干问题的决定》，明确提出“建立社会主义市场经济体制，就是要使市场在社会主义国家宏观调控下对资源配置起基础性作用，使经济活动遵循价值规律的要求，适应供求关系的变化，通过价格杠杆和竞争机制的功能，把各自独立分散的营利性经济活动有机结合起来，并按照供求关系的变化自动地调节资源在全社会的分配”。

AlphaGo [26] Socratic

2015 年 Bohunt Chinese School 與 BBC 的「Are Our Kids Tough Enough」
? 活動

2012 年 PISA 测试成绩
 2015 年 2018 年 PISA 测试成绩

Bohunt Chinese School
Bohunt [27]

□□□□□□□□□□□□□□□□□□□□ PISA □□□□□□□□□□□□□□□□□□□□
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Bohunt

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Discipline **Bohunt**
 Socratic

“ ” 2012

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Technological Singularity AI: A Modern Approach

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[REDACTED]——[REDACTED]
[REDACTED]“[REDACTED]”[REDACTED]

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Technological Singularity

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□ □ □ □ □

☐ Karl Popper

[illegible][illegible]

BRAIN Initiative 

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The Development of Liberal Arts and Sciences

[1] **AI: A Modern Approach** **“Aristotle... was the first to formulate a precise set of laws governing the rational part of the mind.”(On page 5)**

□ □

Technological Singularity—AlphaGo Zero —superhuman —In Math We Trust [16]—“

[illegible]

"Read my lips: no new taxes"

[illegible]

[3] 王路: 中国形而上学, 商务印书馆, 2003.

[5] [XX](#)
[XXXXXXXXXXXXXXXXXXXXXXXXXX](#)

leucotomy clinical condition personality intelligence 25 clinical condition personality intelligence 41 clinical condition personality intelligence 28 clinical condition personality intelligence

leucotomy clinical condition personality intelligence 25 clinical condition personality intelligence 41 clinical condition personality intelligence 28 clinical condition personality intelligence

[6] leucotomy clinical condition personality intelligence 25 clinical condition personality intelligence 41 clinical condition personality intelligence 28 clinical condition personality intelligence

leucotomy clinical condition personality intelligence 25 clinical condition personality intelligence 41 clinical condition personality intelligence 28 clinical condition personality intelligence

[7] Leucotomy in England and Wales, 1942-1954 9284 41 clinical condition 28 clinical condition 25 clinical condition 2 clinical condition 4 clinical condition

leucotomy clinical condition personality intelligence 25 clinical condition personality intelligence 41 clinical condition personality intelligence 28 clinical condition personality intelligence clinical condition personality intelligence

leucotomy clinical condition personality intelligence 25 clinical condition personality intelligence 41 clinical condition personality intelligence 28 clinical condition personality intelligence

Renato M.E. Sabbatini Even lobotomy's preponents admitted that only one third of the operated patients would improve, while one-third remained the same, and one-third got worst Leucotomy in England and Wales, 1942-1954 <http://www.cerebromente.org.br/n02/historia/lobotomy.htm>

one third would improve one-third remained the same clinical condition personality intelligence

[8] SyNAPSE ACM Gordon Bell prize Dharmendra Modha thank you note

Henry Markram SyNAPSE announcement mass deception of the public SyNAPSE Henry Markram "It is not impossible to build a human brain and we can do it in 10 years." Human Brain project

NIH Director moonshot BRAIN Initiative dynamic brain activity map neurosciences

moonshot moonshot

NIH Director

[9]

peer review peer review

AlphaGo Zero superhuman generic human AlphaGo Zero

[10]

AlphaGo Google AlphaGo AlphaGo Zero AlphaGo Human level artificial intelligence AlphaGo

[11]

Demis Hassabis AlphaGo Zero AlphaGo Zero Deepmind

Deepmind ethics board Deepmind Google AlphaGo

[12] AlphaGo Zero AlphaGo Master AlphaGo Zero AlphaGo Master 16 AlphaGo Zero 18 AlphaGo Zero 14 16 45

1 Nature Magazine AlphaGo Deepmind AlphaGo Zero AlphaGo Master

2) AlphaGo Zero local trap

[13] The Guadian a meta-solution to any problem

"Demis Hassabis ... is deadly serious when he tells me he is on a mission to 'solve intelligence, and then use that to solve everything else'.

.....

'One way of thinking of AGI is as a process that will automatically convert

unstructured information into actionable knowledge. What we're working on is potentially a meta-solution to any problem."

from <https://www.theguardian.com/technology/2016/feb/16/demis-hassabis-artificial-intelligence-deepmind-alphago>

[14] Cracking Go Deep Blue AlphaGo AlphaGo

[15] Universal approximation theorem Turing Machine

[16]

In God We Trust God Trust

In Math We Trust In Math We Trust

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[21] 1819 Ferdinand Schweikart

1830

Ferdinand Schweikart

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wikipedia

emergent phenomena


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IT

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[30] Nature AlphaGo Zero is superhuman in both games in fewer than 60 hours of self-play. <https://www.nature.com/articles/nature24468>

[illegible]

The selfish Gene